STATEMENT OF THE CLAIMS

1. (original) A tracking system for a vehicle mounted satellite antenna, said tracking system comprising:

a) a yaw sensor;

b) a pitch sensor;

c) a roll sensor; and

d) bias correction means coupled to said yaw sensor, said pitch sensor, and said roll sensor, said bias correction means including one of

first bias correction means for correcting yaw sensor bias where roll sensor bias has been calibrated to zero, and

second bias correction means for correcting yaw sensor bias where pitch sensor bias has been calibrated to zero.

2. (original) A tracking system according to claim 1, wherein:

said first bias correction means includes means for calculating $\{DAz + DEl \tan(Az) \tan(El)\}$ where DAz and DEl are antenna correction rates, Az is the azimuth of the antenna, and El is the elevation of the antenna.

3. (original) A tracking system according to claim 2, wherein:

said bias correction means includes pitch sensor bias correction means for calculating pitch sensor bias.

4. (original) A tracking system according to claim 3, wherein:

said pitch sensor bias correction means includes means for calculating {DEl sec(Az)}.

5. (original) A tracking system according to claim 1, wherein:

said second bias correction means includes means for calculating {DAz + DEl cot(Az) tan(El)} where DAz and DEl are antenna correction rates, Az is the azimuth of the antenna, and El is the elevation of the antenna.

6. (original) A tracking system according to claim 5, wherein:

said bias correction means includes pitch sensor bias correction means for calculating pitch sensor bias.

7. (original) A tracking system according to claim 6, wherein:

said pitch sensor bias correction means includes means for calculating {DEl csc(Az)}.

8. (original) A tracking system according to claim 1, further comprising:

e) azimuth angle correction means coupled to said yaw sensor, said pitch sensor, and said roll sensor for computing a corrected azimuth angle for said antenna based on input from said sensors.

9. (original) A tracking system according to claim 8, wherein:

said azimuth angle correction means includes means for calculating {Az - (fx cos(Az)tan(El)+ fy sin(Az)tan(El)+ fz)Dt} where Az is the azimuth of the antenna, El is the elevation of the antenna, fx, fy, fz are derived from the roll, pitch, yaw sensor outputs respectively, and Dt is a time interval.

10. (original) A tracking system according to claim 9, wherein:

fx, fy, fz are the respective roll, pitch, yaw sensor outputs less the estimated bias for each sensor output.

11. (original) A tracking system according to claim 8, further comprising:

f) elevation angle correction means coupled to said yaw sensor, said pitch sensor, and said roll sensor for computing a corrected elevation angle for said antenna based on input from said sensors.

12. (original) A tracking system according to claim 11, wherein:

said elevation angle correction means includes means for calculating {El - (-fx sin(Az)+ fy cos(Az)) Dt}.

13. (original) A tracking system according to claim 12, wherein:

fx, fy, fz are the respective roll, pitch, yaw sensor outputs less the estimated bias for each sensor output.

14. (original) A tracking system for a vehicle mounted satellite antenna having a signal output, said tracking system comprising:

a) a received signal strength indicator coupled to the signal output of the satellite antenna;

b) an adjustable phase shifter coupled to said received signal strength indicator and to the signal output of the satellite antenna, wherein

said adjustable phase shifter automatically adjusts the phase of the signal output of the satellite antenna in response to said received signal strength indicator in order to obtain maximum received signal strength.

15. (original) A tracking system according to claim 14, further comprising:

c) a beam forming network coupled to said antenna and to said phase shifter.

16. (original) A tracking system according to claim 15, wherein:

said beam forming network includes means for splitting the signal output into two signals having a relative phase difference, and

said adjustable phase shifter includes means for adjusting the relative phase difference of the two signals

17. (original) A satellite antenna system, comprising:

a) a satellite antenna having a signal output;

b) an adjustable phase shifter coupled to said signal output;

c) channel selection detection means coupled to said adjustable phase shifter and having means for coupling to the data port of a settop box, said channel selection detection means including means for determining a selected satellite channel from the data port of the settop box and means for adjusting said adjustable phase shifter based on the selected channel.

18. (previously amended) A satellite antenna system according to claim 17, further comprising:

c) a beam forming network coupled to said antenna and to said phase shifter.

19. (previously amended) A satellite antenna system according to claim 18, wherein:

said beam forming network includes means for splitting the signal output into two signals having a relative phase difference, and

said adjustable phase shifter includes means for adjusting the relative phase difference of the two signals.